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Some Suggestions for the Treatment of Celery Rust.

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The greatest hindrance to the successful production of celery in this state, is the disease known as Rust or Blight. This disease is produced by a fungus that attacks the leaves and stems causing them to assume a yellowish color, with brown spots scattered over them that increase in size, until the affected leaves and stems die. If the conditions are favorable for the development of the fungus the leaves will become affected, so rapidly and to such an extent that the life of the plant will be destroyed. If the conditions for the development of the fungus are less favorable, only the outer leaves will die, while the newer leaves will be but partially destroyed. The result will be a small plant of inferior quality. During the past two years the rust has been so destructive in this state that a number of growers have abandoned the raising of this otherwise satisfactory crop. There is no fixed time for the appearance of celery rust, but it is usually to be seen after a drought of longer or shorter duration, followed by warm, damp weather. It must be remembered that these weather conditions alone will not produce rust, but that the fungus spores must be present before the rust can make its appearance. In combating the disease therefore it is necessary either to produce those conditions under which the spores cannot germinate, or to spray some fungicide upon the plants that will destroy the spores or at least prevent them from germinating. In order to determine which method of procedure would be best, and for the purpose of finding a satisfactory remedy for the celery rust, a number of experiments were undertaken on the college grounds last season. From a part of one of the celery beds four plats of about equal size were laid off and treated as follows: No. 1 was shaded, No. 2 was sprayed with ammoniacal carbonate of copper, No. 3 was sprayed with Bordeaux

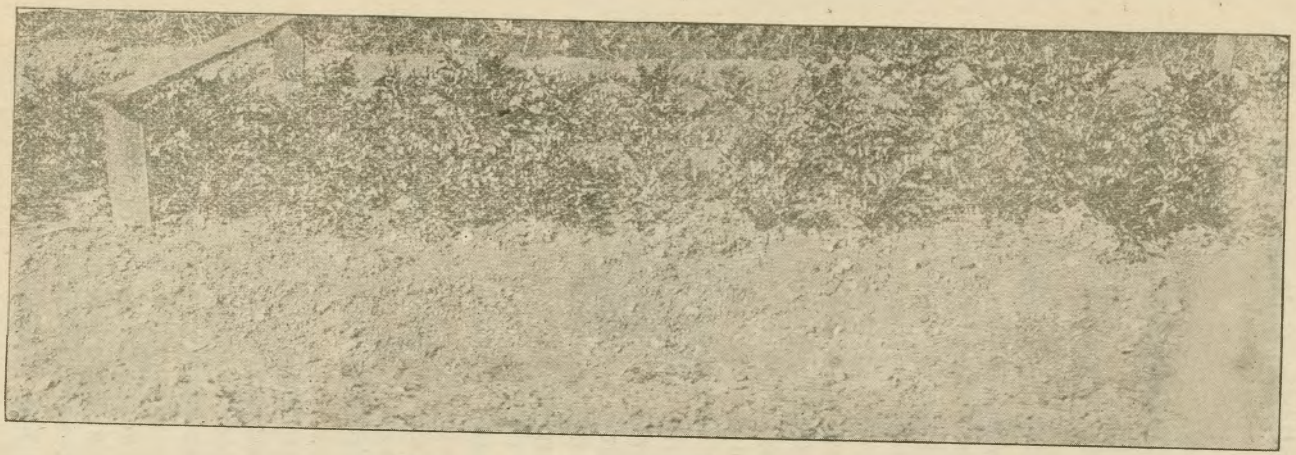

Figure 1. Celery shaded with muslin.

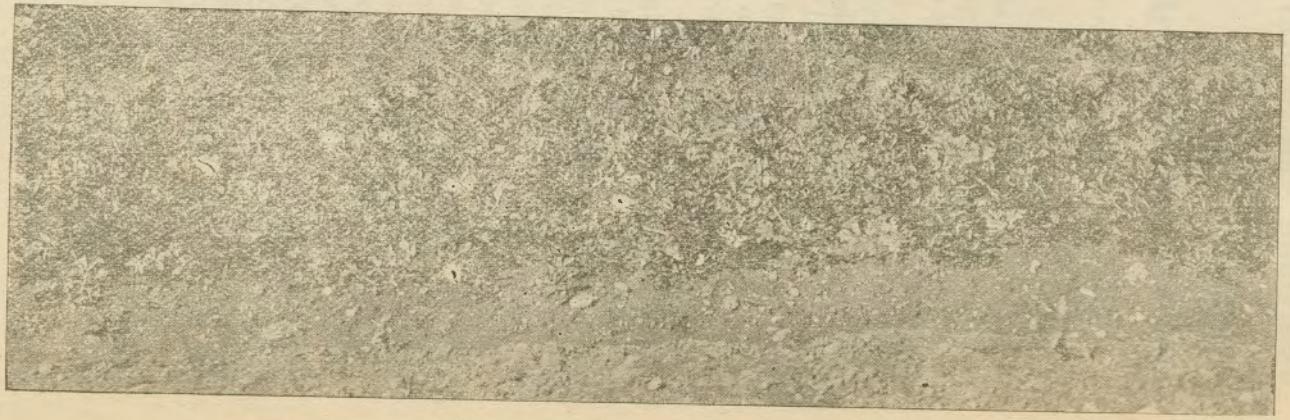

Figure 2. Celery sprayed with Ammoniacal Carbonate.

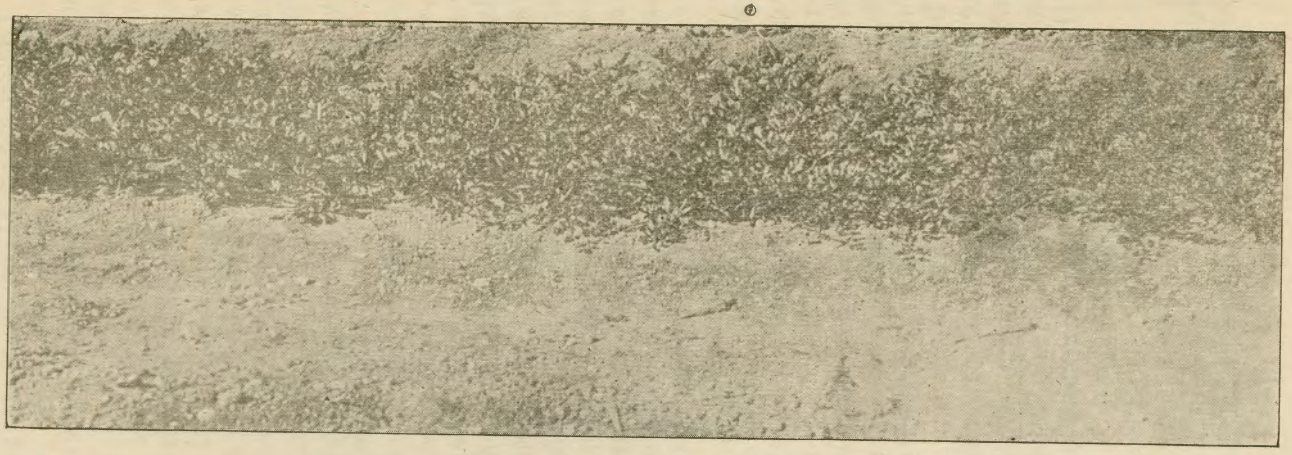

Figure 3. Celery sprayed with Bordeaux mixture.

Figure 4. Celery not treated, for comparison.

mixture while No. 4 was left untreated for comparison. In shading No. 1 a framework 18 inches high was built over the plat, (one end of which is shown in Figure 1.) and over this frame work, was spread a single thickness of muslin which was left in place during the hot season of July and August, and was removed only to work the plants.

The ammoniacal carbonate of copper used in No. 2 was made by placing one ounce of copper carbonate in just enough ammonia water to dissolve it and then diluting to nine gallons with ordinary well water. The amount of ammonia water required per ounce of copper carbonate, was about one half pint which was diluted to two quarts before the copper carbonate was placed in it. In plat No. 3, the Bordeaux mixture used was the ordinary strength and prepared from stock solutions as described in circular number 2. These solutions were applied with the aid of a knapsack sprayer. The plants were thoroughly and frequently sprayed, not for the purpose of determining how many sprayings would be needed to control the disease, but with the object in view of ascertaining whether or not sprayings would under existing conditions be of any use. The treatment of the celery was not begun until the rust had made its appearance hence the leaves that had been attacked died in spite of the treatment, as was expected, showing that the measures used must be preventive and not curative, and should therefore be begun before the plants are attacked. Some of the leaves that were not diseased before shading, became affected after the shading was done, but the plants were in much better condition than those in plat 4, which received no treatment, (see figures 1 and 4.) The ammoniacal carbonate of copper and the Bordeaux mixture both kept the healthy leaves free from the attacks of fungus, but the plants sprayed with the ammoniacal carbonate seemed to make a better growth than those sprayed with Bordeaux mixture. Whether the growth was retarded by the Bordeaux mixture or hastened by the Ammonia solution it was impossible to determine. All the plants sprayed lived, while of those not treated about one half died, and the remaining half were smaller than the treated plants owing to the constant attack of the fungus and the consequent loss of leaves. (see Figs. 2 and 3 and compare with Fig. 4). The conclusion is therefore that the Rust may be satisfactorily controlled by spraying. That ammoniacal carbonate promises better results than Bordeaux mixture, and that shading, as used in these tests, is only partially successful in preventing Celery Rust.